WINTER WEATHER AWARENESS WEEK

NATIONAL WEATHER SERVICE
TENNESSEE EMERGENCY MANAGEMENT AGENCY

A Campaign by the National Weather Service and the Tennessee Emergency Management Agency

Summer has ended, and fall is here. The National Weather Service and the Tennessee Emergency Management Agency would like to bring another weather threat to the forefront and heighten everyone's awareness of this significant weather threat – Winter Weather.

Hazardous weather can strike sometimes with little notice. Tornadoes strike with unwanted regularity. Severe thunderstorms with downburst winds and large hail occur even more frequently. Floods and flash floods can wash people and property.

Last winter (2002-2003) was unseasonably cold and wet. The average temperature last winter was 37.1 degrees, which is 2.4 degrees below normal. Precipitation was 7.6 inches or 3.5 inches above normal. Snowfall last winter was 15.1 inches or 6 inches above normal. Almost half of our snowfall occurred on January 16 with 7 inches. The morning of January 28th, 2003 saw bitter cold temperatures. Nashville had a low temperature of 2 above. As a matter of reference, the coldest winter of record was 31.8 degrees (7.7 degrees below normal) in the winter of 1977-1978.

Because of heavy snow and ice, people in their homes or automobiles can become isolated, and not able to perform their normal daily activities. People are inconvenienced, injured or may even die. Even without snow or ice, intense cold can injure or kill before a person realizes the seriousness of the situation.

Fatalities from hypothermia have occurred from prolonged exposure in air temperatures of 40-50 degrees. Frostbite is another risk many people face during the winter months as they venture outside.

The risk of carbon monoxide poisoning occurs with those who use a kerosene heater. It is important that they remember to leave a small opening to the window to vent out the carbon monoxide gas.

Persons with certain chronic health conditions and those over 65 are more at risk for hypothermia, even within the home.

One hazard that is not often associated with winter is flooding. Floods occur when too much rain or melted snow fills river or creek channels too quickly. Along Tennessee's rivers and streams, flooding is a natural part of life and most common during winter and early spring. Frozen ground, sparse vegetation, and less evaporation are all factors that allow water to reach the river channels quickly during the cold months.

Remember, floods and flash floods are the **number one weather killer** in the United States.

The National Weather Service Forecast Office in Nashville and the Tennessee Emergency Management Agency will highlight **November 18th, 19th, and 20th** as **Winter Weather Awareness Week**, in order to bring these hazards to the attention of the public. We will be sending information through our communications network including the National Weather Service's NOAA Weather Radio during this period.

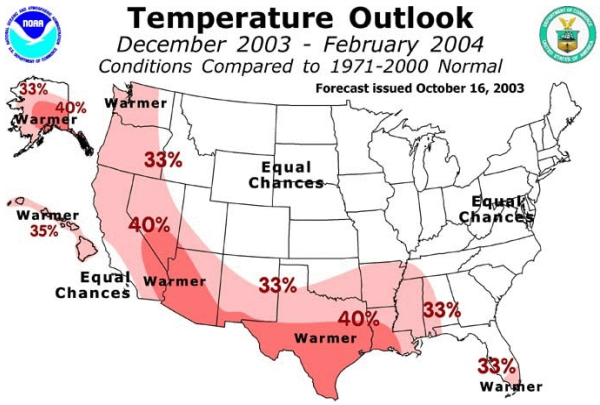
We would like our customers to be familiar with our winter weather terms and criteria. Review our winter weather safety tips and be prepared! We hope you will all join with us to make this the safest winter possible.

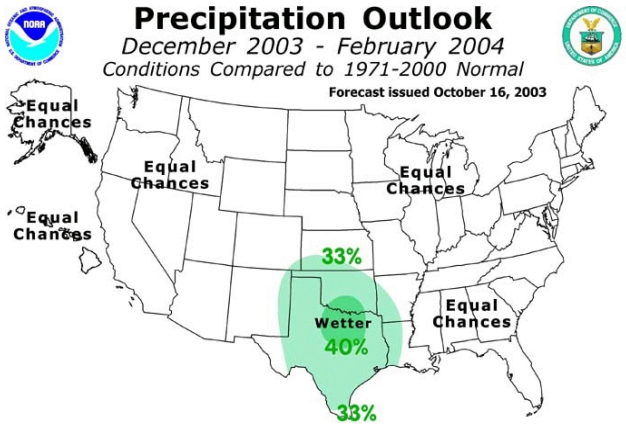
Outlook for the Winter- December 2003 through February 2004

The National Weather Service recently released it's official winter (December 2003 through February 2004) forecast. The outlook calls for slightly above normal temperatures for west Tennessee and near normal temperatures for middle and east Tennessee. Near normal precipitation is forecast for Tennessee this winter.

While the average temperature for the entire season is expected to be near normal, there will still be several weather disturbances moving through, bringing occasional cold snaps and the possibility of heavy snow events. Full details on the outlook can be found at:

http://www.cpc.ncep.noaa.gov





NORMAL WINTER CONDITIONS

NASHVILLE

	December	January	February	
Avg High Temps	**49.4**	**45.6**	**51.4**	
Avg Low Temps	**31.5**	**27.9**	**31.2**	
Avg Temps	**40.5**	**36.8**	**41.3**	
Avg Precip	**4.61**	**3.97**	**3.69**	
Avg Snowfall	**0.5**	**3.9**	**3.4**	**(Total 9.1 inches annually)**

A Word from the Meteorologist in Charge- Mr. Derrel R. Martin

The colors are changing, and there has already been a nip in the air. Many of us are in the process of winterizing our cars and homes.

During the winter and early spring months, our area receives a wide variety of weather events. This is the time of year we get flooding rains, snows, freezing rain, severe thunderstorms and possibly a few tornadoes. Flooding is a significant event for us during the winter months and early spring, occurring most likely in the January through March time frame. Significant snow events can occur from December through March.

Each of us should plan for these events and be prepared. It is important to know what to do when severe weather of any type occurs. Talk with your family to ensure everyone knows where to go and what to do. In case of flooding, act quickly but thoughtfully. Heed the advice and directions of emergency personnel. These crews have put themselves in harms way to help the citizens. When there is any threat of bad weather, be sure to have a good source of information, such as NOAA Weather Radio, or local TV and radio stations. We believe every home should have a weather radio with an automatic alert. These will alert you anytime day or night when a warning is issued and can keep you updated with the latest forecasts directly from the National Weather Service office.

We hope you find the information in our Winter Awareness Week Pamphlet worthwhile and valuable. There are several groups that work together to help all of our citizens remain safe. The Tennessee Emergency Management Agency, local law enforcement, 911 centers, Emergency Operations Centers, fire departments, road crews etc. and the mass media such as radio, TV, and newspapers work together with the NWS. These devoted groups along with the National Weather Service make up a team dedicated to serve and to protect the public. We greatly appreciate their efforts.

SKYWARN Spotters are volunteers who give us ground truth information on the severity of a storm, year round. Spotters are “the eyes of the National Weather Service”. They provide a tremendous service to their community.

Our Spotters are not only used during the spring months, our peak severe weather season, but also are very helpful during winter. Some of our Spotters will take the time to report snow depth, icing conditions, give us reports of downed trees and power lines due to heavy icing, and treacherous road conditions via a toll free phone number.

We encourage our SKYWARN Spotters to take a refresher course once every 3 years.

To become a SKYWARN Spotter, contact the National Weather Service Office in Nashville at (615)-754-8506. We can use your services year round.

We appreciate and thank all our SKYWARN Spotters for the work they do. The staff at the National Weather Service Office in Nashville would like to wish all our Spotters, emergency services personnel, and friends in the media, a safe and happy Holiday Season.

Know the Threat!!

Snow and Freezing Rain

Heavy snow and/or freezing rain can immobilize a region and paralyze a city. Accumulations of snow can collapse roofs of buildings, weigh down trees and power lines. Rural areas may be isolated for days. It is recommended that each household have provisions and the ability to remain self-sufficient for at least 3 days without power, or help, as it may take this long to reopen main roads and reestablish vital services.

Wind Chill

Wind Chill is based on the rate of heat loss from exposed skin caused by the combined effects of wind and cold. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill. The biggest question that always comes up with wind chill is, does it affect water pipes and car radiators. The answer is no, the accelerated loss of heat occurs on exposed skin only. When the wind chill approaches minus 20 degrees, frostbite can occur in 15 minutes or less.

Hypothermia

Hypothermia is the loss of body heat that results in a life threatening situation.

Warning Signs

Uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion.

Detection

Take the person's temperature. If the temperature is below 95 degrees F, immediately seek medical care. This is a life threatening situation. If care is not immediately available, begin warming the person slowly. Warm the core first. Get the person into warm clothing and wrap them in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee, or any very hot beverage or food, warm broth is better. Do not warm the extremities first, this drives cold blood toward the heart and may cause heart failure.

Frostbite

Frostbite is damage to body tissue caused by the tissue being frozen. Frostbite causes the loss of feeling and a white or pale appearance in extremities, such as fingers, toes, earlobes, or the tip of the nose. If symptoms are detected, get medical help immediately. If you must wait for help, slowly warm affected areas. If the person is also showing signs of hypothermia, warm the body core before the extremities.

Flooding

Flooding is the number one weather killer in the United States annually. Whether or not you live in a flood prone location, you will likely still be affected by flooded roads, or power outages or water contamination from flooding during the next year. Most people killed in flooding die in their vehicles. NEVER drive onto flooded roads. Two feet of running water is enough to sweep away most cars. If flooding begins to affect you in your car, abandon it immediately and head for higher ground. You should keep at least three days' worth of clothes, non-perishable foods and medications, and personal supplies on hand for each person in your family, in case flooding affects your home. Store these supplies in a sturdy waterproof container.

Before the Storm

Know the terms – A **Winter Weather Advisory** is issued when ice or snow is expected to hinder travel, but conditions are not serious enough to require warnings. This is more of a nuisance type of winter storm.

Heavy Snow Warning: 3 inches or more of snow is expected in 12 hours or less or 5 inches or more of snow is expected in 24 hours or less.

Snow Advisory: Snow accumulating one inch, but under 3 inches in a 12 hour period or less.

Ice Storm Warning: Ice accumulations of 1/4 inch or more on all surfaces within a 12 hour period.

Freezing Rain Warning: Ice accumulations of .01 inch to less than 1/4 inch. Freezing rain is forecast when expected rain is likely to freeze as soon as it strikes the ground, potentially creating a coat of ice on roads and walkways. Sleet consists of small particles of ice. Sleet can accumulate on roads and cause them to become slippery.

Sleet Warning: Sleet accumulating ½ inch or more. If less than ½ inch then it is a **sleet advisory**.

Freezing Rain or Drizzle Advisory: Light ice accumulations **not** on all surfaces.

Blowing Snow Advisory: Visibility 1/4 mile or less in blowing snow.

Wind Chill Warning: Wind chills of -25 degrees or colder. This can lead to life-threatening hypothermia or frostbite.

Wind Chill Advisory: Wind chills of -10 degrees to -24 degrees.

Winter Storm Warning: Means that severe winter weather conditions are expected within the next 24 hours.

A **blizzard warning** means that winds of 35 mph or more are expected and visibility is reduced to less than 1/4 mile in snow for at least 3 hours.

A **Winter Storm Watch** means that severe winter weather is possible within the next day or two.

Be Prepared – Keep a battery powered radio and flashlights in working order, stock extra batteries.

Store drinking water and have food that can be prepared without an electric or gas stove. Stock emergency water and cooking supplies. Have candles and matches available in case of a power outage. Be careful how you use them. Be certain that needed medications are available.

Be Prepared for isolation at home – Make sure you have sufficient heating fuel; regular fuel sources may be cut off. Have some kind of emergency heating equipment and fuel so that you can keep at least one room warm, but do **NOT** use a gas fired grill inside the home. Take measures to protect plumbing from freezing. Contact local utilities for winter tips.

Keep your car or truck "winterized" - Winterizing includes being certain about antifreeze protection levels and use a gasoline additive to reduce gasoline freezing. Carry a "Winter Car Kit" that includes high energy foods, a windshield scraper, flashlight, tow rope or chain, shovel, tire chains, blanket, bag of sand or salt, fluorescent distress flag and an emergency flare – all in case you're trapped in your vehicle by a winter storm. Keep extra gloves, mittens, hats, earmuffs and outerwear in the vehicle throughout the winter.

During the Storm

Stay Informed – Listen to radio or television for updates on weather conditions. With early warning, you may avoid being caught in the storm, or at least be better prepared to cope with it.

Dress for the season : Avoid getting wet – Many layers of thin clothing are warmer than a single layer of thick clothing. Mittens are warmer than gloves. Wear a hat; most body heat is lost through the top of the head. Cover your mouth to protect lungs; don't directly inhale extremely cold air.

Overexertion can bring on a heart attack – a major cause of death during and after winter storms – If shoveling snow isn't critical, don't do it. If you must shovel , don't overexert yourself.

If you are isolated at home – Conserve fuel by keeping your house cooler than usual and by "closing off" heat to some rooms. When kerosene heaters are used, maintain ventilation to avoid toxic fumes. Use only the fuel recommended by the manufacturer and follow operating instructions. Use a carbon-monoxide detector/alarm and a smoke alarm.

Do Not Drive into Worsening Conditions – If you must travel, take winter driving seriously. Travel by daylight, and keep others informed of your schedule. Drive with extreme caution. Never try to save time by driving fast or by using back-road shortcuts. Tennessee road conditions can be obtained by calling 1-800-342-3258 or on the Internet at

www.tdot.state.tn.us/roadcondition/currentmap.asp

If a blizzard traps you in a vehicle- Pull off the highway, stay calm and remain in your vehicle where rescuers are most likely to find you. Set your directional lights to "flashing" and hang a cloth or distress flag from the radio antenna or window.

Do not set out on foot unless you can see a building close by where you know you can take shelter. Be careful: distances are distorted by blowing snow. A building may seem close, but actually may be too far away to walk to in deep snow.

If you run the engine to keep warm, open a window slightly for ventilation. This will help protect you from possible carbon monoxide poisoning. Periodically clear away snow from the exhaust pipe.

Exercise to maintain body heat, but avoid overexertion. In extreme cold, use road maps, seat covers, and floor mats for insulation. Huddle with passengers and use your coats as blankets.

Never let everyone in the car sleep at one time. One person should always be awake to look out for rescue crews.

Be careful not to use up all battery power. Balance electrical energy needs – the use of lights, heat and radio with supply. At night, turn on the inside dome light, so work crews can spot you.

If in a remote area-

Spread a large cloth or the vehicle floor mats on the snow to attract rescue personnel who may be surveying the area from above. Once the blizzard passes, you may need to leave the car and proceed on foot to better shelter.

Keeping in Touch

After any disaster, friends, relatives, insurance adjusters, etc. may need to locate you and your family. The following tips may reduce the confusion associated with making contact:

(1) Before evacuating your home, establish a contact person (and phone number) out of the potential disaster area where friends and relatives should "check-in" with each other.

(2) When you evacuate, consider leaving a note, securely attached to the front door, telling where you can be reached – but only if you have reason to believe someone might come looking for you.

(3) If widespread damage occurs, insurance adjusters or others might have trouble identifying your home or finding you. Therefore, after the storm has subsided, consider spray painting the following information somewhere that is highly visible: Name, address, insurance company, policy number and contact number.

Wind Chill

The new Wind Chill Temperature Index will make use of advances in meteorology, biometeorology and computer modeling to provide a more accurate, useful formula for calculating the dangers from winter winds and freezing temperatures. In addition, clinical trials have been conducted and the results of those trials have been used to verify and improve the accuracy of the new formula

Specifically, the new WCT index:

- uses calculated wind speed at an average height of five feet (typical height of a human face) based on readings from the national standard height of 33 feet (typical height of an anemometer);
- is based on the latest heat transfer theory, i.e., heat loss from the body to its surroundings, during cold and breezy/windy days;
- uses a standard factor for skin tissue and assumes a no sunlight scenario

Wind (mph)

Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite occurs in 15 minutes or less

NOAA WEATHER RADIO !!!

NOAA Weather Radio, the "Voice of the National Weather Service", broadcasts National Weather Service warnings, watches and local forecasts 24 hours a day. Routine weather information is updated every one to three hours and NOAA Weather Radio broadcasts are repeated every five minutes or so.

New programmable NOAA Weather Radio receivers now on the market have a special feature that allows consumers to choose only the official watches and warnings that affect their county area and screen out any warnings issued for other counties within the typical 40-mile broadcast range of the transmitter.

Using digital technology known as Specific Area Message Encoding (SAME), all official watches and warnings issued by the NWS over NOAA Weather Radio are preceded by unique audio codes that describe the type of warning and identify the county or counties being warned. People who own this new SAME-capable receiver can pre-select their local codes to ensure they hear the specific warning information they need to make potentially life-saving decisions.

Older NOAA Weather Radio receivers are not affected by the technology change, but these older receivers do not allow listeners to take advantage of the SAME capability to screen out Weather Service alerts for individual counties.

The broadcast range from most NOAA Weather Radio transmitters is approximately 40 miles. The effective range depends on terrain, quality of the receiver, and indoor/outdoor antennas.

As part of the modernization plan for the National Weather Service, the CONSOLE REPLACEMENT SYSTEM or CRS is designed to improve the severe weather warning program and station efficiency with fewer employees. The CRS will significantly reduce the amount of time it takes to broadcast warnings, which will in turn, increase the amount of time you can safely respond to threatening weather.

CRS will receive radio broadcast messages directly from our computer system and will automatically broadcast the message over the radio by way of a computer generated voice.. We hope you will be pleased with our efforts to improve our services.

There are 11 transmitters that cover Middle Tennessee and a 12th transmitter pending at **Lafayette.** These transmitters are located at: **Waverly** and **Cookeville** on 162.400 MHz, **Lawrenceburg** on 162.425 MHz, **Centerville** and **Spencer** on 162.450 MHz, **Shelbyville** on 162.475 MHz, and **Clarksville** on 162.500 MHz, **Lobelville, Winchester** and **Carthage-Smithville** on 162.525 MHZ, and **Nashville** on 162.550MHz.

Counties	**Same Code**	**Transmitter(s)**	**Frequency**
Bedford	047003	Shelbyville TN/Carthage-Smithville	162.475/162.525
Benton	047005	Waverly TN/Lobelville	162.400/162.525
Bledsoe	047007	Spencer TN	162.450
Cannon	047015	Shelbyville TN	162.475
Cheatham	047021	Nashville TN	162.550
Clay	047027	Cookeville TN (Lafayette pending)	162.400/?
Coffee	047031	Shelbyville TN/Winchester	162.475/162.525
Cumberland	047035	Cookeville TN/Spencer	162.400/162.450
Davidson	047037	Nashville TN	162.550
Decatur	047039	Lobelville TN	162.525
Dekalb	047041	Cookeville/Spencer/Carthage-Smithville	162.400/162.450/162.525
Dickson	047043	Waverly TN/Nashville	162.400/162.550
Fentress	047049	Cookeville TN	162.400
Franklin	047051	Shelbyville TN/Winchester	162.475/162.525
Giles	047055	Lawrenceburg TN	162.425
Grundy	047061	Shelbyville TN/Winchester	162.475/162.525
Henderson	047077	Lobelville TN	162.525
Hickman	047081	Waverly/Centerville/Lobelville	162.400/162.450/162.525
Houston	047083	Waverly TN	162.400
Humphreys	047085	Waverly TN/Lobelville	162.400/162.525
Jackson	047087	Cookeville/Carthage-Smithville/ (Lafayette pending)	162.400/162.525/?
Lawrence	047099	Lawrenceburg TN	162.425
Lewis	047101	Lawrenceburg/Centerville/Lobelville/	162.425/ 162.450/162.525
Lincoln	047103	Lawrenceburg TN/Winchester	162.425/162.525
Macon	047111	Nashville TN/(Lafayette pending)	162.550/?
Marshall	047117	Lawrenceburg TN/Shelbyville	162.425/162.475
Maury	047119	Lawrenceburg TN/Nashville	162.425/162.550
Montgomery	047125	Clarksville TN/Nashville	162.500/162.550

Moore	047127	Shelbyville TN/Winchester	162.475/162.525
Overton	047133	Cookeville TN	162.400
Perry	047135	Waverly TN/Lobelville	162.400/162.525
Pickett	047137	Cookeville TN	162.400
Putnam	047141	Cookeville/Spencer/Carthage-Smithville	162.400/162.450/162.525
Robertson	047147	Nashville TN	162.550
Rutherford	047149	Nashville TN/Shelbyville	162.550/475
Stewart	047161	Waverly TN	162.400
Sumner	047165	Nashville TN/(Lafayette pending)	162.550/?
Van Buren	047175	Cookeville TN/Spencer	162.400/162.450
Warren	047177	Shelbyville TN/Spencer	162.475/162.450
Wayne	047181	Lawrenceburg TN	162.425
White	047185	Cookeville TN/Spencer	162.400/162.450
Williamson	047187	Nashville TN/Shelbyville/Lawrenceburg	162.550/162.475/162.425
Wilson	047189	Nashville/Shelbyville/Carthage-Smithville (Lafayette pending)	162.550/162.465/162.525/?

Below are a few winter weather record facts to pique your interest and get us started on the safest winter on record.

COLD TEMPERATURES

All Time Coldest Temperatures

Memphis	-13	Dec 24, 1963
Nashville	-17	Jan 21, 1985
Chattanooga	-10	Feb 13, 1899; Jan 31, 1966; Jan 21, 1985
Knoxville	-24	Jan 21, 1985
Tri-Cities	-21	Jan 21, 1985
Allardt	-27	Jan 21, 1985
Kingston Springs	-30	Jan 24, 1963

Coldest Average Temperature During a Winter Season (Dec-Feb)

Memphis	36.1	1917-18
Nashville	31.8	1977-78
Chattanooga	34.8	1962-63
Knoxville	34.2	1963-64
Tri-Cities	30.0	1976-77

Coldest Monthly Average Temperature

	December	January	February
Memphis	31.5 in 1963	27.2 in 1940	32.0 in 1899
Nashville	29.5 in 1989	24.5 in 1977	29.2 in 1978
Chattanooga	34.3 in 1917	28.5 in 1977	33.8 in 1895
Knoxville	29.2 in 1876	26.7 in 1940	30.5 in 1895
Tri-Cities	27.8 in 1963	22.1 in 1977	28.1 in 1958

SNOWFALL

Maximum Seasonal Snowfall

Memphis	25.1 in 1917-18
Nashville	38.5 in 1959-60
Chattanooga	22.7 in 1992-93
Knoxville	56.7 in 1959-60
Tri-Cities	51.0 in 1959-60

Maximum Monthly Snowfall

	December	January	February	March
Memphis	14.3/1963	15.1/1948	10.3/1905	18.5/1892
Nashville	13.2/1963	18.8/1948	18.9/1979	21.5/1892
Chattanooga	14.8/1886	15.8//1883	17.3/1895	20.0/1993
Knoxville	25.4/1886	15.1/1962	25.7/1895	20.2/1960
Tri-Cities	12.9/1963	22.1/1966	20.4/1979	27.9/1960

24 Hour Maximum Snowfall

	December	January	February	March
Memphis	14.3/1963	10.1/1948	6.0/1905	18.0/1892
Nashville	5.9/1963	8.5/1918	16.3/1886	17.0/1892
Chattanooga	12.0/1886	10.2/1988	8.7/1960	20.0/1993
Knoxville	15.1/1886	12.0/1962	17.5/1960	14.1/1993
Tri-Cities	9.6/1969	9.7/1955	10.7/1969	14.2/1993